129
C1

Sequence Listing

<110> Adams, Sean
Pan, James
Zhong, Alan

<120> UCP4

<130> P1626R1

<141> 1999-09-15

<150> US 60/101,279
<151> 1998-09-22

<150> US 60/114,223
<151> 1998-12-30

<150> US 60/129,674
<151> 1999-04-16

<160> 18

<210> 1
<211> 323
<212> PRT
<213> Homo sapiens

<400> 1

Met Ser Val Pro Glu Glu Glu Glu Arg Leu Leu Pro Leu Thr Gln
1 5 10 15

Arg Trp Pro Arg Ala Ser Lys Phe Leu Leu Ser Gly Cys Ala Ala
20 25 30

Thr Val Ala Glu Leu Ala Thr Phe Pro Leu Asp Leu Thr Lys Thr
35 40 45

Arg Leu Gln Met Gln Gly Glu Ala Ala Leu Ala Arg Leu Gly Asp
50 55 60

Gly Ala Arg Glu Ser Ala Pro Tyr Arg Gly Met Val Arg Thr Ala
65 70 75

Leu Gly Ile Ile Glu Glu Glu Gly Phe Leu Lys Leu Trp Gln Gly
80 85 90

Val Thr Pro Ala Ile Tyr Arg His Val Val Tyr Ser Gly Gly Arg
95 100 105

Met Val Thr Tyr Glu His Leu Arg Glu Val Val Phe Gly Lys Ser

```
                110                 115                 120

Glu Asp Glu His Tyr Pro Leu Trp Lys Ser Val Ile Gly Gly Met
                125                 130                 135

Met Ala Gly Val Ile Gly Gln Phe Leu Ala Asn Pro Thr Asp Leu
                140                 145                 150

Val Lys Val Gln Met Gln Met Glu Gly Lys Arg Lys Leu Glu Gly
                155                 160                 165

Lys Pro Leu Arg Phe Arg Gly Val His His Ala Phe Ala Lys Ile
                170                 175                 180

Leu Ala Glu Gly Gly Ile Arg Gly Leu Trp Ala Gly Trp Val Pro
                185                 190                 195

Asn Ile Gln Arg Ala Ala Leu Val Asn Met Gly Asp Leu Thr Thr
                200                 205                 210

Tyr Asp Thr Val Lys His Tyr Leu Val Leu Asn Thr Pro Leu Glu
                215                 220                 225

Asp Asn Ile Met Thr His Gly Leu Ser Ser Leu Cys Ser Gly Leu
                230                 235                 240

Val Ala Ser Ile Leu Gly Thr Pro Ala Asp Val Ile Lys Ser Arg
                245                 250                 255

Ile Met Asn Gln Pro Arg Asp Lys Gln Gly Arg Gly Leu Leu Tyr
                260                 265                 270

Lys Ser Ser Thr Asp Cys Leu Ile Gln Ala Val Gln Gly Glu Gly
                275                 280                 285

Phe Met Ser Leu Tyr Lys Gly Phe Leu Pro Ser Trp Leu Arg Met
                290                 295                 300

Thr Pro Trp Ser Met Val Phe Trp Leu Thr Tyr Glu Lys Ile Arg
                305                 310                 315

Glu Met Ser Gly Val Ser Pro Phe
                320         323
```

<210> 2
<211> 1039
<212> DNA
<213> Homo sapiens

<400> 2
ccgagctcgg atcccgttat cgtcttgcgc tactgctgaa tgtccgtccc 50

ggaggaggag gagaggcttt tgccgctgac ccagagatgg ccccgagcga 100

gcaaattcct actgtccggc tgcgcggcta ccgtggccga gctagcaacc 150

tttcccctgg atctcacaaa aactcgactc caaatgcaag gagaagcagc 200

tcttgctcgg ttgggagacg gtgcaagaga atctgccccc tataggggaa 250

tggtgcgcac agccctaggg atcattgaag aggaaggctt tctaaagctt 300

tggcaaggag tgacacccgc catttacaga cacgtagtgt attctggagg 350

tcgaatggtc acatatgaac atctccgaga ggttgtgttt ggcaaaagtg 400

aagatgagca ttatcccctt tggaaatcag tcattggagg gatgatggct 450

ggtgttattg gccagttttt agccaatcca actgacctag tgaaggttca 500

gatgcaaatg gaaggaaaaa ggaaactgga aggaaaacca ttgcgatttc 550

gtggtgtaca tcatgcattt gcaaaaatct tagctgaagg aggaatacga 600

gggctttggg caggctgggt acccaatata caaagagcag cactggtgaa 650

tatgggagat ttaaccactt atgatacagt gaaacactac ttggtattga 700

atacaccact tgaggacaat atcatgactc acggtttatc aagtttatgt 750

tctggactgg tagcttctat tctgggaaca ccagccgatg tcatcaaaag 800

cagaataatg aatcaaccac gagataaaca aggaagggga cttttgtata 850

aatcatcgac tgactgcttg attcaggctg ttcaaggtga aggattcatg 900

agtctatata aaggcttttt accatcttgg ctgagaatga ccccttggtc 950

aatggtgttc tggcttactt atgaaaaaat cagagagatg agtggagtca 1000

gtccatttta agaattctgc agatatccat cacactggc 1039

<210> 3
<211> 31
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-31

<400> 3
cgcggatccc gttatcgtct tgcgctactg c 31

<210> 4
<211> 34
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-34

<400> 4
gcggaattct taaaatggac tgactccact catc 34

<210> 5
<211> 1248
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-1248

<220>
<221> unknown
<222> 1231
<223> unknown base

<400> 5
cgttatcgtc ttgcgctact gctgaatgtc cgtcccggag gaggaggaga 50

ggcttttgcc gctgacccag agatggcccc gagcgagcaa attcctactg 100

tccggctgcg cggctaccgt ggccgagcta gcaacctttc ccctggatct 150

cacaaaaact cgactccaaa tgcaaggaga agcagctctt gctcggttgg 200

gagacggtgc aagagaatct gccccctata ggggaatggt gcgcacagcc 250

ctagggatca ttgaagagga aggctttcta aagctttggc aaggagtgac 300

acccgccatt tacagacacg tagttatttc tggaggtcga atggtcacat 350

atgaacatct ccgagaggtt gtgtttggca aaagtgaaga tgagcattat 400

ccccttgga aatcagtcat tggagggatg atggctggtg ttattggcca 450

gtttttagcc aatccaactg acctagtgaa ggttcagatg caaatggaag 500

gaaaaaggaa actggaagga aaaccattgc gatttcgtgg tgtacatcat 550

gcatttgcaa aaatcttagc tgaaggagga atacgaaggc tttgggcagg 600

ctgggtaccc aatatacaaa gagcagcact ggtgaatatg ggagatttaa 650

ccacttatga tacagtgaaa cactacttgg tattgaatac accacttgag 700

gacaatatca tgactcacgg tttatcaagt ttatgttctg gactggtagc 750

ttctattctg ggaacaccag ccgatgtcat caaaagcaga ataatgaatc 800

aaccacgaga taaacaagga aggggacttt tgtataaatc atcgactgac 850

tgcttgattc aggctgttca aggtgaagga ttcatgagtc tatataaagg 900

ctttttacca tcttggctga gaatgacccc ttggtcaatg gtgttctggc 950

ttacttatga aaaaatcaga gagatgagtg gagtcagtcc attttaaacc 1000

cctaaagatg caacccttaa agatacagtg ttcagtatta ttgaaatatg 1050

ggcatctgca acacataccc cctattattt ctacctcttt aggaagacac 1100

ctattccaca gagactgatt tatagggggc agcactttat ttttttctgg 1150

aaacccaagt tctctttgac tcctcttttt gtccaaaagt gatctggtcg 1200

gatctcacaa ggccatccaa tgagaccccg nacagcattt tctaaaga 1248

<210> 6
<211> 58
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-58

<400> 6
cgcggatccg aaatggacta caaggacgac gatgacaagt ccgtcccgga 50

ggaggagg 58

<210> 7
<211> 35
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-35

<400> 7
gcgaagcttg ccatggttgg actgaagcct tcaga 35

<210> 8
<211> 33

<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-33

<400> 8
cgcgaattct caaaacggtg attcccgtaa cat 33

<210> 9
<211> 61
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-61

<400> 9
gcgaagcttg ccatggacta caaggacgac gatgacaagg ttggactgaa 50

gccttcagac g 61

<210> 10
<211> 19
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-19

<400> 10
aatgcctatc gccgaggag 19

<210> 11
<211> 20
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-20

<400> 11
gtaggaactt gctcgtccgg 20

<210> 12
<211> 22
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-22

<400> 12
tgctcgcgct cacgcagaga tg 22

<210> 13
<211> 24
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-24

<400> 13
gaaatcgtgc gtgacatcaa agag 24

<210> 14
<211> 23
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-23

<400> 14
ctccttctgc atcctgtcag caa 23

<210> 15
<211> 22
<212> DNA
<213> Artificial

<220>
<223> Artificial Sequence 1-22

<400> 15
cggttccgat gccctgaggc tc 22

<210> 16
<211> 307
<212> PRT
<213> Homo sapiens

<400> 16

Met	Gly	Gly	Leu	Thr	Ala	Ser	Asp	Val	His	Pro	Thr	Leu	Gly	Val
1				5				10					15	

Gln	Leu	Phe	Ser	Ala	Pro	Ile	Ala	Ala	Cys	Leu	Ala	Asp	Val	Ile
			20					25					30	

Thr	Phe	Pro	Leu	Asp	Thr	Ala	Lys	Val	Arg	Leu	Gln	Val	Gln	Gly
			35					40					45	

Glu Cys Pro Thr Ser Ser Val Ile Arg Tyr Lys Gly Val Leu Gly
50 55 60

Thr Ile Thr Ala Val Val Lys Thr Glu Gly Arg Met Lys Leu Tyr
65 70 75

Ser Gly Leu Pro Ala Gly Leu Gln Arg Gln Ile Ser Ser Ala Ser
80 85 90

Leu Arg Ile Gly Leu Tyr Asp Thr Val Gln Glu Phe Leu Thr Ala
95 100 105

Gly Lys Glu Thr Ala Pro Ser Leu Gly Ser Lys Ile Leu Ala Gly
110 115 120

Leu Thr Thr Gly Gly Val Ala Val Phe Ile Gly Gln Pro Thr Glu
125 130 135

Val Val Lys Val Arg Leu Gln Ala Gln Ser His Leu His Gly Ile
140 145 150

Lys Pro Arg Tyr Thr Gly Thr Tyr Asn Ala Tyr Arg Ile Ile Ala
155 160 165

Thr Thr Glu Gly Leu Thr Gly Leu Trp Lys Gly Thr Thr Pro Asn
170 175 180

Leu Met Arg Ser Val Ile Ile Asn Cys Thr Glu Leu Val Thr Tyr
185 190 195

Asp Leu Met Lys Glu Ala Phe Val Lys Asn Asn Ile Leu Ala Asp
200 205 210

Asp Val Pro Cys His Leu Val Ser Ala Leu Ile Ala Gly Phe Cys
215 220 225

Ala Thr Ala Met Ser Ser Pro Val Asp Val Val Lys Thr Arg Phe
230 235 240

Ile Asn Ser Pro Pro Gly Gln Tyr Lys Ser Val Pro Asn Cys Ala
245 250 255

Met Lys Val Phe Thr Asn Glu Gly Pro Thr Ala Phe Phe Lys Gly
260 265 270

Leu Val Pro Ser Phe Leu Arg Leu Gly Ser Trp Asn Val Ile Met
275 280 285

Phe Val Cys Phe Glu Gln Leu Lys Arg Glu Leu Ser Lys Ser Arg
290 295 300

Gln Thr Met Asp Cys Ala Thr
305 307

<210> 17
<211> 309.
<212> PRT
<213> Homo sapiens

<400> 17

```
Met Val Gly Phe Lys Ala Thr Asp Val Pro Pro Thr Ala Thr Val
  1               5                  10                  15

Lys Phe Leu Gly Ala Gly Thr Ala Ala Cys Ile Ala Asp Leu Ile
            20                  25                  30

Thr Phe Pro Leu Asp Thr Ala Lys Val Arg Leu Gln Ile Gln Gly
            35                  40                  45

Glu Ser Gln Gly Pro Val Arg Ala Thr Val Ser Ala Gln Tyr Arg
            50                  55                  60

Gly Val Met Gly Thr Ile Leu Thr Met Val Arg Thr Glu Gly Pro
            65                  70                  75

Arg Ser Leu Tyr Asn Gly Leu Val Ala Gly Leu Gln Arg Gln Met
            80                  85                  90

Ser Phe Ala Ser Val Arg Ile Gly Leu Tyr Asp Ser Val Lys Gln
            95                 100                 105

Phe Tyr Thr Lys Gly Ser Glu His Ala Ser Ile Gly Ser Arg Leu
           110                 115                 120

Leu Ala Gly Ser Thr Thr Gly Ala Leu Ala Val Ala Val Ala Gln
           125                 130                 135

Pro Thr Asp Val Val Lys Val Arg Phe Gln Ala Gln Ala Arg Ala
           140                 145                 150

Gly Gly Gly Arg Arg Tyr Gln Ser Thr Val Asn Ala Tyr Lys Thr
           155                 160                 165

Ile Ala Arg Glu Glu Gly Phe Arg Gly Leu Trp Lys Gly Thr Ser
           170                 175                 180

Pro Asn Val Ala Arg Asn Ala Ile Val Asn Cys Ala Glu Leu Val
           185                 190                 195

Thr Tyr Asp Leu Ile Lys Asp Ala Leu Leu Lys Ala Asn Leu Met
           200                 205                 210
```

Thr Asp Asp Leu Pro Cys His Phe Thr Ser Ala Phe Gly Ala Gly
215 220 225

Phe Cys Thr Thr Val Ile Ala Ser Pro Val Asp Val Val Lys Thr
230 235 240

Arg Tyr Met Asn Ser Ala Leu Gly Gln Tyr Ser Ser Ala Gly His
245 250 255

Cys Ala Leu Thr Met Leu Gln Lys Glu Gly Pro Arg Ala Phe Tyr
260 265 270

Lys Gly Phe Met Pro Ser Phe Leu Arg Leu Gly Ser Trp Asn Val
275 280 285

Val Met Phe Val Thr Tyr Glu Gln Leu Lys Arg Ala Leu Met Ala
290 295 300

Ala Cys Thr Ser Arg Glu Ala Pro Phe
305 309

<210> 18
<211> 300
<212> PRT
<213> Homo sapiens

<400> 18
Met Ala Val Lys Phe Leu Gly Ala Gly Thr Ala Ala Cys Phe Ala
1 5 10 15

Asp Leu Val Thr Phe Pro Leu Asp Thr Ala Lys Val Arg Leu Gln
20 25 30

Ile Gln Gly Glu Asn Gln Ala Val Gln Thr Ala Arg Leu Val Gln
35 40 45

Tyr Arg Gly Val Leu Gly Thr Ile Leu Thr Met Val Arg Thr Glu
50 55 60

Gly Pro Cys Ser Pro Tyr Asn Gly Leu Val Ala Gly Leu Gln Arg
65 70 75

Gln Met Ser Phe Ala Ser Ile Arg Ile Gly Leu Tyr Asp Ser Val
80 85 90

Lys Gln Val Tyr Thr Pro Lys Gly Ala Asp Asn Ser Ser Leu Thr
95 100 105

Thr Arg Ile Leu Ala Gly Cys Thr Thr Gly Ala Met Ala Val Thr
110 115 120

Cys Ala Gln Pro Thr Asp Val Val Lys Val Arg Phe Gln Ala Ser
125 130 135

Ile His Leu Gly Pro Ser Arg Ser Asp Arg Lys Tyr Ser Gly Thr
140 145 150

Met Asp Ala Tyr Arg Thr Ile Ala Arg Glu Glu Gly Val Arg Gly
155 160 165

Leu Trp Lys Gly Thr Leu Pro Asn Ile Met Arg Asn Ala Ile Val
170 175 180

Asn Cys Ala Glu Val Val Thr Tyr Asp Ile Leu Lys Glu Lys Leu
185 190 195

Leu Asp Tyr His Leu Leu Thr Asp Asn Phe Pro Cys His Phe Val
200 205 210

Ser Ala Phe Gly Ala Gly Phe Cys Ala Thr Val Val Ala Ser Pro
215 220 225

Val Asp Val Val Lys Thr Arg Tyr Met Asn Ser Pro Pro Gly Gln
230 235 240

Tyr Phe Ser Pro Leu Asp Cys Met Ile Lys Met Val Ala Gln Glu
245 250 255

Gly Pro Thr Ala Phe Tyr Lys Gly Phe Thr Pro Ser Phe Leu Arg
260 265 270

Leu Gly Ser Trp Asn Val Val Met Phe Val Thr Tyr Glu Gln Leu
275 280 285

Lys Arg Ala Leu Met Lys Val Gln Met Leu Arg Glu Ser Pro Phe
290 295 300